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| 10/755,338   | 01/13/2004  | Kenneth J. Young     | 84731 3085 KAW      | 1232             |
| 20736 7590 04/23/2008<br>MANELLI DENISON & SELTER<br>2000 M STREET NW SUITE 700<br>WASHINGTON, DC 20036-3307 |             |                      |                     |                  |
| EXAMINER   |             |                      |                     |                  |
| KIM, TAE JUN   |             |                      |                     |                  |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
| 3746   |             |                      |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/755,338

**Applicant(s)**

YOUNG, KENNETH J.

**Examiner**

Ted Kim

**Art Unit**

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 February 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,5-9 and 11-15 is/are pending in the application.  
4a) Of the above claim(s) 7-9,11,13 and 14 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,3,5,6,12 and 15 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 20 February 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 3, 5, 6, 12, 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 was amended to recite: “A *fuel injector nozzle* for a gas turbine, the nozzle comprising *an air supply passage centrally located by a wall having a selected cross section and a fuel supply passage surrounding said air supply passage and having a cross section greater than said cross section of said air supply passage* so that, in operation, the air supply from the air supply passage will directly impinge on at least a portion of said nozzle, said fuel supply passage and said nozzle will have air flow portions of lower pressure outside of the portions of direct impingement and where the nozzle includes fuel distribution structures which are asymmetrically distributed about the nozzle to differentially present fuel to the air flow passing through the nozzle and dependent on localized air flow pressure.” There are a number of issues with this claim. First, at the beginning of the claim requires “*an air supply passage centrally located by a wall having a selected cross section and a fuel*

*supply passage surrounding said air supply passage and having a cross section greater than said cross section of said air supply passage.”* However, later the claim requires:

“in operation, the air supply from the air supply passage will directly impinge on at least a portion of said nozzle.” As the air supply passage is central to the nozzle and an integral portion thereof, it cannot be said that the air from this passage will directly impinge on the nozzle. It would appear perhaps that applicant intended to refer to the air from the diffuser 2, 3, 4 (see Fig. 1) impinging on the nozzle, as this is the only source of air that that directly impinges on the nozzle. However, this air supply passage is certainly not part of the nozzle nor is there a fuel supply passage surrounding it.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 3, 5, 6, 12, 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As indicated above, applicant's claim limitations are not supported by the specification and as it is unclear what elements are intended to be claimed, this renders the scope of the claims indefinite.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3, 5, 6, 12, 15, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Joshi et al (5,613,363). Joshi et al teach a fuel injector nozzle (see Figs. 8-10) for a gas turbine, the nozzle comprising an air supply passage within 85 centrally located by a wall 37 having a selected cross section and a fuel supply passage 56, 87 surrounding said air supply passage and having a cross section greater than said cross section of said air supply passage so that, in operation, *the air supply from the air supply passage will directly impinge on at least a portion of said nozzle, said fuel supply passage and said nozzle will inherently have air flow portions of lower pressure outside of the portions of direct impingement* [this is indefinite, as described above, and given little patentable weight] and where the nozzle includes fuel distribution structures 88 (Fig. 9) or 88A, 88B (Fig. 10) which are asymmetrically distributed about the nozzle (Fig. 9 the fuel distribution structures are clearly asymmetrically distributed; in Fig. 10, the use of both fuel distribution structures 88A and 88B create an asymmetric pattern) to differentially present fuel to the air flow passing through the nozzle and dependent on localized air flow pressure (note that the amount of fuel presented will inherently be based on the localized air pressure, e.g. as fuel progresses along the length of each

structure 88, the fuel pressure drop will increase and the amount which can exit from the fuel apertures 90 is always dependent on the local air pressure); the fuel distribution structures are inherently configured such that less fuel is presented to the portions of the air flow of lower pressure than to portions of air flow of high pressure; the fuel distribution structure comprises a plurality of grooves 90; wherein the fuel distribution structure comprises a number of passageways within 88 or 88A, 88B; wherein the fuel distribution structure is an integral part of a fuel injection nozzle.

7. Claims 1, 3, 5, 6, 12, 15, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Von Der Bank (2003/0106321). Von Der Bank teaches a fuel injector nozzle for a gas turbine, the nozzle comprising an air supply passage (within 4) centrally located by a wall 4 having a selected cross section and a fuel supply passage 7 surrounding said air supply passage and having a cross section greater than said cross section of said air supply passage so that, in operation, *the air supply from the air supply passage will directly impinge on at least a portion of said nozzle, said fuel supply passage and said nozzle will have air flow portions of lower pressure outside of the portions of direct impingement* [this is indefinite, as addressed above, and given little patentable weight] and where the nozzle includes fuel distribution structures 8 (see Fig. 8) which are asymmetrically distributed about the nozzle to differentially present fuel to the air flow passing through the nozzle and dependent on localized air flow pressure; wherein the fuel distribution structures are configured such that less fuel is presented at portions of the air flow of lower flow pressure typically outside of the direct impingement

cross-section of the air flow; wherein the fuel distribution structure comprises a plurality of grooves; wherein the fuel distribution structure comprises a number of passageways; wherein the fuel distribution structure is an integral part of a fuel injection nozzle 4

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 3, 5, 6, 12, 15, as best understood, rejected under 35 U.S.C. 103(a) as being unpatentable in view of Von Der Bank (2003/0106321) in view of either Hughes et al (4,327,547) or Foust et al (6,418,726). Von Der Bank teaches a fuel injector nozzle for a gas turbine, the nozzle comprising an air supply passage (within 4) centrally located by a wall 4 having a selected cross section and a fuel supply passage 7 surrounding said air supply passage and having a cross section greater than said cross section of said air supply passage so that, in operation, said fuel supply passage and said nozzle will have air flow portions of lower pressure outside of the portions of direct impingement and where the nozzle includes fuel distribution structures 8, 9 together (see Fig. 3, 4, 5) which are asymmetrically distributed about the nozzle to differentially present fuel to the air flow passing through the nozzle and dependent on localized air flow pressure; wherein the fuel distribution structures in sections in Fig. 5 (Fig. 5 has a typographical error as

element 8 should be element 9, see page 2, paragraph 0038 and that the nozzles in Fig. 8 are described as elements 9 not 8) are configured such that less fuel is presented at portions of the air flow of lower flow pressure typically outside of the direct impingement cross-section of the air flow; wherein the fuel distribution structure comprises a plurality of grooves 8, 9; wherein the fuel distribution structure comprises a number of passageways; wherein the fuel distribution structure is an integral part of a fuel injection nozzle 4. Von Der Bank does not show the upstream of the combustor and fuel injector structure. Hughes et al teach a fuel injector 10 which has a larger cross sectional area than the air passage/diffuser upstream thereof and having an analogous configuration to Fig. 1 of applicant's specification. This type of arrangement will inherently have an analogous regions of direct impingement and air flow portions of lower pressure outside of the portions of direct impingement, as the configuration is analogous to applicant's. Foust et al teach a fuel injector 40 which has a larger cross sectional area than the air passage/diffuser upstream thereof and having an analogous configuration to Fig. 1 of applicant's specification. This type of arrangement will inherently have an analogous regions of direct impingement and air flow portions of lower pressure outside of the portions of direct impingement, as the configuration is analogous to applicant's. Furthermore, applicant admits that the wider cross-section air/fuel arrangements are used in the art and have smaller regions of direct impingement than the fuel nozzle (see page 1, last paragraph of the specification). It would have been obvious to one of ordinary skill in the art to employ this type of air arrangement entrance with a smaller area than



the fuel injector area, as a highly conventional practice in the art. In combination, the structure of Fig. 3-5 of Von Der Bank with the conventional smaller diffuser/air passage, will result in an analogous structure to the disclosed device and thus inherently meet the claimed function.

***Response to Arguments***

10. Applicant's arguments filed 02/20/2008 with respect to the claims have been considered. Applicant's arguments concerning Von Der Bank rely on limitations which are indefinitely claimed and present new matter issues. Applicant relies on the nozzle ring 4 being smaller in cross section than an airflow presented to it. However, contrary to applicant's assertions here, the airflow passage to the left of the combustor/fuel injector is not illustrated. Moreover, as is known in these types of gas turbine combustors, the air flow presented to the fuel injector 2 comes from a diffuser/air flow passage. Von Der Bank in combination with the prior art sized air supply passage/diffuser upstream of the fuel injector will inherently meet the claimed limitations as the resulting structure is analogous to that disclosed.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax number for the organization where this application is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer, can be reached at 571-272-7118. Alternate inquiries to Technology Center 3700 can be made via 571-272-3700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>

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